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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/542,718	07/20/2005	Koji Nakayama	442P098	1882
42754	7590	09/25/2007		
NIELDS & LEMACK 176 EAST MAIN STREET, SUITE 7 WESTBORO, MA 01581			EXAMINER ZIMMER, MARC S	
			ART UNIT	PAPER NUMBER
			1712	
			MAIL DATE	DELIVERY MODE
			09/25/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/542,718	<b>Applicant(s)</b> NAKAYAMA, KOJI	
	<b>Examiner</b> Marc S. Zimmer	<b>Art Unit</b> 1712	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 15 August 2007.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 10-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) 11,13 and 14 is/are allowed.
- 6) ☒ Claim(s) 10 and 12 is/are rejected.
- 7) ☐ Claim(s) 11,13 and 14 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

Applicant has amended both claims 10 and 11 to stipulate that the claimed methods are carried out in a medium selected from one of five specified organic solvents. Ostensibly because they anticipated that the Examiner would hold the claims newly added limitations as being obvious, Applicant has also furnished a declaration outlining a purportedly unexpected benefit associated with the employment of the claimed solvents in lieu of a protic solvent such as methanol. In particular, it is stated that the condensation product obtained upon carrying out the reaction in MIBK is superior in heat resistance when compared with the polymer prepared in methanol.

The improved heat resistance is surely the outcome of a polymer having a different molecular weight, polydispersity, or some other property having been obtained from the system that employ MIBK as the solvent. The Examiner had attempted to find a reference that describes the intimate mechanistic details of a base-catalyzed polycondensation reaction of hydrolyzable organosilicon compounds so as to ascertain whether one of ordinary skill might have predicted different outcomes, ones explaining the different heat resistances documented by Applicant's declaration, when MIBK or one of the other polar aprotic solvents replaces an alcohol or water as the solvating medium, but was unsuccessful. Therefore, Applicant's assertion that the observed differences in the heat resistance of polymers prepared in aprotic and protic solvents cannot be refuted.

However, a modified survey of the prior art yielded new prior art that serves to render unpatentable at least some of the remaining claims.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 10 and 12 are rejected under 35 U.S.C. 102(e) as being anticipated by Lichtenhan et al., U.S. Patent Application Publication No. 2003/0055193. See paragraph 92.

Dai et al., U.S. Patent Application Publication No. 2003/0212228 is cited as being of interest for its disclosure in paragraphs 151 and 152 of a method of preparing a condensate derived from glycidoxypolytrimethoxysilane and phenyltrimethoxysilane that entails forming a prepolymer of these materials in the presence of an acid and a considerable volume of MIBK and, thereafter, carrying out further condensation of the prepolymer in the presence of a base also in MIBK. This reference, while noteworthy, fails to even render obvious the claimed invention at least for the reason that the claims stipulate that an epoxysilane is polycondensed in the presence of a base whereas the compound being condensed in the presence of base according to the process outlined in these paragraphs would be an epoxy-functional oligosiloxane (labeled a prepolymer by the authors). The Examiner does not believe that Applicant's claims embrace this permutation. It should be emphasized that, while it is a possibility that some of the

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epoxy-functional siloxane may go unreacted during the first stage and, hence, be present when the second base-catalyzed stage begins, the Examiner cannot verify this notion.

As an aside, while the Examiner acknowledges that Lichtenhan discloses polyhedral silsesquioxanes (POSS) derived from both organofunctional silanes and hydrolyzable silanes bearing monovalent hydrocarbon substituents, the approach for making these compounds entails corner-capping an incompletely condensed POSS. In fact, the bulk of that disclosure is directed to corner-capping reactions and the synthesis outlined in paragraph 92 stands out for its departure from the general theme of the reference. That is to say, there is no fair suggestion of making a heteroleptic (POSS), one derived from a mixture of different silanes, by simply co-polymerizing different silanes together, e.g. epoxycyclohexyltrimethoxysilane with a hydrolyzable silane bearing monovalent hydrocarbon substituents.

Claims 11, 13, and 14 appear to be allowable.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Marc S. Zimmer whose telephone number is 571-272-1096. The examiner can normally be reached on Monday-Friday 8:00-4:30.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy Gulakowski can be reached on 571-272-1302. The fax phone

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number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

September 19, 2007

  
MARC S. ZIMMER  
PRIMARY EXAMINER